REMARKS

In the outstanding Official Action, the Examiner:

(1) objected to the drawings and required corrected drawing sheets in compliance with 37 CFR 1.121(d);

(2) indicated that the title of the invention is not descriptive and required a new title which is clearly indicative of the invention to which the claims are directed; and

(3) rejected claims 1-6 under 35 USC 102(b) as being anticipated by Roseborough et al. (U.S. Patent No. 6,141,019) ("Roseborough").

In response to Item (1) above, Applicants are submitting herewith corrected drawing sheets in compliance with 37 CFR 1.121(d). More particularly, Applicants are submitting Figures 36-39, each of which are labeled "Replacement Sheet".

In response to Item (2) above, Applicants have replaced the title of the invention with the following: "Virtual Character and Virtual Environment Utilizing Behavior States, Emotion States and Learning States", as suggested by the Examiner.

In response to Item (3) above, Applicants have amended claims 1 and 2 and added new claims 7-10 in order to more clearly define the invention and distinguish it from the prior art.

Claim 1, as amended, discloses a system which allows additional virtual characters to be introduced into the virtual environment after creation of the system, with those additional virtual characters functioning in precisely the same manner that they would have if they had been placed into the virtual world at the time the system was created. Thus, the system of claim 1 is dynamically expandable and does not need to be fully configured at the time the system is created.

In contrast, Applicants believe that the system of Roseborough is pre-configured at the time the system is created and that it may not be altered after the creation of the system. More particularly, Roseborough, at column 17, lines 50-65, merely indicates that a synthetic creature may be placed in, or even travel through, multiple environments. Roseborough does not indicate that a synthetic creature may be merged into a pre-existing system and thereafter properly interact with that environment. Accordingly, claim 1, as amended, is believed to overcome the Examiner's rejection under 102(b).

Claim 2, as amended, specifies that (i) the behavior state of the virtual character is determined as a function of a plurality of different factors, and (ii) the learning state incorporates a reinforcement learning mechanism which alters the relative weighting of the different factors used in determining the behavior state. Thus, the system of claim 2 uses reinforcement learning to enforce, either positively or negatively, the existing actions (nodes) and does not require the addition or removal of actions from the existing system in order for the virtual character to learn.

In contrast, Roseborough mentions learning in passing, but does not specify how such learning would be implemented. Specifically, at Column 15, lines 7-11, Roseborough states, "a synthetic creature 10 with extensive learning capabilities will in all likelihood require the ability to add or remove behaviors 20 to develop totally new behaviors 20 on its own (i.e., a form of learning)". Although it is not specifically stated how such learning would be implemented, the fact that Roseborough requires adding or removing behaviors to develop new behaviors implies the use of a different mechanism than the one disclosed in claim 2.

Thus, Roseborough does not teach the reinforcement learning mechanism of our system.

In addition, the system of claim 2 is both system-adjusted and author-adjusted while the system of Roseborough is only author-adjusted. Accordingly, claim 2, as amended, is believed to overcome the rejections by the Examiner under 102(b).

Claims 3-6 depend from claim 2, either directly or indirectly, and are believed to be allowable at least through dependency.

Claim 7 discloses a system with a learning state which incorporates a reinforcement learning mechanism for altering the relative weighting of the plurality of different factors used in determining the behavior state. As stated above, Roseborough does not teach the reinforcement learning mechanism of our system and only mentions learning in passing with no indication as to how such learning would be implemented.

Claim 8 discloses a system wherein a virtual character comprises a blackboard data structure which permits other virtual characters to access a subset of that virtual character's behavior state, emotion state and learning state, whereby to enhance the level of interaction between the characters. This feature is neither taught nor rendered obvious by Roseborough.

Claim 9 discloses a system wherein the virtual world comprises an audio-visual component for displaying audio and visual manifestations of the virtual world to the user, wherein the audio-visual component comprises an animation engine for driving the animated display of the virtual world and an audio engine for driving audio output for the virtual world and further wherein the audio-visual component is configured such that the

audio engine may drive the animation engine. These features are neither taught nor rendered obvious by Roseborough.

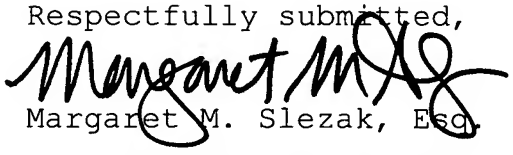
Claim 10, which depends from claim 9, discloses an audio-visual component which comprises at least one camera for determining a selected view of the virtual world, wherein the camera comprises a virtual character comprising a behavior state, an emotion state and a learning state, and wherein said behavior state, said emotion state and said learning state of the camera are capable of changing in response to (i) interaction with other virtual elements within the virtual environment, and/or (ii) commands from said user input controls. This feature is neither taught nor rendered obvious by Roseborough.

Applicants believe that claims 1-10 are now in condition for allowance, and allowance thereof is respectfully requested.

In the event that any additional fees may be required in this matter, please charge the same to Deposit Account No. 16-0221.

Thank you.

Respectfully submitted,



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